

MI-710C Family of Integrated Position Controllers



The MI-710C Family of Integrated Position Controllers offer solutions for nearly every Motion Control Application

– from precision placement and rotation of tools, targets or instruments in laboratories, test facilities or remote field locations – to complex multi-axis positioners and scanners.

- Offers cost-effective “one box” configuration minimizing hardware and cabling
- Scalable architecture for control of up to 8 axes with up to 8 stored profiles per axis
- Modes of operation include Position, Velocity, Torque and Incremental Motion control
- Provides measurement triggering of other instruments based on position. Captures position data responding to external triggers
- Virtual Axes Provide Coordinated Motion per Mathematically Defined Relationships
- Supports High Accuracy Incremental and Absolute Position Feedback Sensors
- Positioner Accuracy Enhancement Corrects for Repeatable Systemic Errors

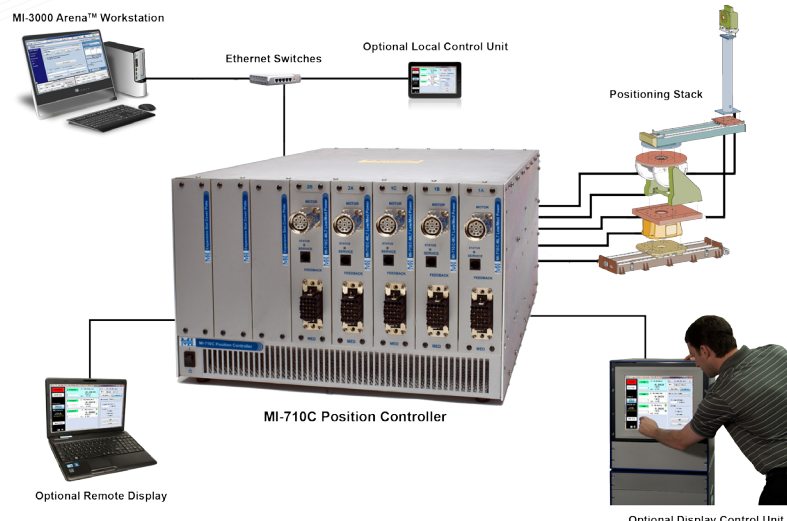
Description

The modular and flexible architecture is configurable for control of up to eight axes. The architecture allows an increased connectivity to a wider variety of positioning equipment.

The MI-710C Integrated Position Controller is based on a modular chassis to accommodate multiple functions in one box. Previous position control technologies centered on a control unit that managed the position feedback loops and drove a separate power amplifier unit (PAU) which ultimately provided motion control. The MI-710C is a single box solution needed for complex control functions and offers local or remote control.

Position Control functions are accessible from full scale system implementations managed by a host computer system. Ethernet connectivity is used to connect to the host workstation or an optional touchscreen display. An optional hand-held local control unit may be used to provide operator control near the final positioner. A Virtual Control Panel (VCP) can run on any Windows-based local control device or rack mounted front panel.

A user programmable position trigger output is provided to initiate measurements at specific locations. This trigger is used in many microwave test systems to initiate an entire sequence of measurements. These position signals are especially powerful when combined with the MI-788 Network Acquisition Controller or the MI-750 Advanced Digital Receiver.



Specifications

Simultaneous Axes	Up to 8 per chassis		
Sequential Axes	Up to 8 per chassis		
Position Feedback	Single Speed Synchro Dual Speed Synchro Incremental Encoder Absolute Encoder		
Velocity Feedback	Tachometer Incremental Encoder		
Input Power	120 or 240 VAC 50 Amps Max, Single Phase		
Motor Types	Brushed, Brushless		
Module Type	Low	Med	High
Motor Bus Voltages	24	160/320	160/320
Deliverable Amps ¹	12	12	35
Deliverable Watts (hp) ¹	288 (0.4)	1000 (1.3) / 2000 (2.6)	3150 (4.2) / 6300 (8.4)

¹ Maximum per axis. Totals cannot exceed the capacity of unit. All products and their specifications subject to change without notice.

Multi-Axis Configurability

This flexible chassis design allows the MI-710C to be configured with a variable number of amplifiers and connections for a variable number of axes. Each of these amplifiers can be set for switched or non-switched operation. Although there is a maximum of 8 I/O slots on a given MI-710C chassis, multiple chassis can be combined and easily configured for a given positioning solution. This makes the number of axes allowed by the MI-710C Family of Integrated Position Controllers practically unlimited.

There are two different chassis options currently available in the MI-710C family to allow for different power ratings. The MI-710C-CH1 is rated for 120V power to supply up to 160V motor bus voltages. The MI-710C-CH2 uses 240V power to drive even higher power motors using a 320V motor bus voltage.

When configured for switched operation, separate motors/axes are controlled through a single amplifier. As each position axis is needed, power is switched through the amplifier module to the needed motor. Switched operation is an efficient way to provide control for most motion control operations in a system with many axes.

In the non-switched case, a motor or axis has a dedicated amplifier providing controlled power. This creates a separate power path through each amplifier to the respective axis allowing multiple motors to be driven simultaneously. The number of axes that can be driven simultaneously is the same as the number of amplifier modules in a given MI-710C configuration.

Flexibility and Compatibility

Ethernet connectivity for control and position data allows for flexible system configuration and rapid data transfer. Synchro and encoder feedback loops allow for consistent and repeatable position control at all times.

By creating a smarter and more configurable PAU system and allowing the user to remove intermediate equipment if desired, the overall system becomes easier to manage and use.

8 Front and Rear Slots

The front panel of the MI-710C Chassis is dedicated to various interface modules. These interface modules provide I/O connectivity to the positioning system axes. These modules are customized not only for the various cabling and connector requirements of feedback lines, but also the power handling needs of the motors and amplifiers. Some interface modules, because of the high power components or connector requirements, use two slots.

MI-710C Interface Modules		
Description	Interface Connection	Chassis Slots
Low, Medium	MI-710 Standard	1
Low, Medium	Milspec, MI-4190	2
High	MI-710 Standard	2
High	Milspec, MI-4190	2
Low, Medium, Synchro	MI-710 Standard	1
Low, Medium, Synchro	Milspec, MI-4190	2
High, Synchro	MI-710 Standard	2
High, Synchro	Milspec, MI-4190	2

The back section of the MI-710C Chassis is devoted to power amplifier modules. Available modules include:

- Single-slot, low horsepower amplifiers for driving low voltage axes such as a small polarization axis or roll and Z-axis stages on planar scanners.
- Two-slot, medium horsepower amplifiers for driving positioning products up to 3/4 horsepower, such as the MI-51150C AZ Positioner or the MI-55290C AZ/EL/AZ Positioner.
- Six-slot high horsepower amplifiers for driving our largest positioning solutions such as the 11 meter turntable or the MI-55850C AZ/EL/AZ Positioner.

MI-710C Servo Amplifier Modules	
Power Capacity	Chassis Slots
Low	1
Medium	2
High	6



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